

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1. (currently amended) A disc drive actuation system for precisely positioning a read/write head over a selected track of a rotatable disc, said system comprising:

- A) a flexure,
- B) a slider,
- C) a read/write head firmly attached to said slider,
- D) a first drive unit for pivoting said flexure to position said read/write head approximately over the selected track,
- E) a microactuator comprising:
 - 1) an inner inactive region,
 - 2) a first outer inactive region,
 - 3) a second outer inactive region,
 - 4) a first piezoelectric section sandwiched between said first outer inactive region and said inner inactive region,
 - 5) a second piezoelectric section sandwiched between said second outer inactive region and said inner inactive region,

wherein said inner inactive region is sandwiched between said first piezoelectric section and said second piezoelectric section, wherein said inner inactive region is firmly attached to one of said flexure or said slider and both of said outer inactive regions being firmly attached to the other of said flexure or said slider,

- 6) an electrical circuit for energizing said first and said second piezoelectric sections to cause them to expand and contract in order to linearly move said read/write head so that said read/write head is precisely positioned ~~precisely position said read/write head~~ over said selected track, said circuit and said piezoelectric sections being configured such that said first piezoelectric section expands when said second piezoelectric section contracts and said first piezoelectric section contracts when said second piezoelectric section expands.

Claim 2. (original) The actuation system as in Claim 1, wherein said first drive unit comprises a voice coil motor.

Claim 3. (original) The actuation system as in Claim 1, wherein said first outer inactive region and said second outer inactive region are connected to said flexure and wherein said slider is connected to said inner inactive region.

Claim 4. (cancelled)

Claim 5. (original) The actuation system as in Claim 1, further comprising a flex circuit for providing electrical connections to said read/write head and said microactuator.

Claim 6. (previously presented) The actuation system as in Claim 1, wherein the disc drive actuation system is a magnetic disc drive actuation system.

Claim 7. (original) The actuation system as in Claim 1, wherein the disc drive actuation system is an optical disc drive actuation system.

Claim 8. (currently amended) A disc drive actuation system for precisely positioning a read/write head over a selected track of a rotatable disc, said system comprising:

- A) a flexure means,
- B) a slider means,
- C) a read/write head means firmly attached to said slider,
- D) a first drive unit means for pivoting said flexure means to position said read/write head means approximately over the selected track,
- E) a microactuator means comprising:
 - 1) an inner inactive region,
 - 2) a first outer inactive region,

- 3) a second outer inactive region,
- 4) a first piezoelectric section sandwiched between said first outer inactive region and said inner inactive region,
- 5) a second piezoelectric section sandwiched between said second outer inactive region and said inner inactive region,

wherein said inner inactive region is sandwiched between said first piezoelectric section and said second piezoelectric section, wherein said inner inactive region is firmly attached to one of said flexure means or said slider means and both of said outer inactive regions being firmly attached to the other of said flexure means or said slider means,

- 6) an electrical circuit for energizing said first and said second piezoelectric sections to cause them to expand and contract in order linearly move said read/write head means so that said read/write head means is precisely positioned ~~to precisely position said read/write head means~~ over said selected track, said circuit means and said piezoelectric sections being configured such that said first piezoelectric section expands when said second piezoelectric section contracts and said first piezoelectric section contracts when said second piezoelectric section expands.

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Claim 9. (original) The actuation system as in Claim 8, wherein said first drive unit means comprises a voice coil motor.

Claim 10. (original) The actuation system as in Claim 8, wherein said first outer inactive region and said second outer inactive region are connected to said flexure means and wherein said slider means is connected to said inner inactive region.

Claim 11. (cancelled)

Claim 12. (original) The actuation system as in Claim 8, further comprising a flex circuit means for providing electrical connections to said read/write head and said microactuator.

Claim 13. (previously presented) The actuation system as in Claim 8, wherein the disc drive actuation system is a magnetic disc drive actuation system.

Claim 14. (original) The actuation system as in Claim 8, wherein the disc drive actuation system is an optical disc drive actuation system.

Claim 15. (currently amended) A disc drive actuation system, comprising:

- C1 Cont
- A) a flexure,
 - B) a microactuator connected to said flexure, said microactuator comprising:
 - 1) an inner inactive region,
 - 2) a first outer inactive region,
 - 3) a second outer inactive region,
 - 4) a first piezoelectric section sandwiched between said first outer inactive region and said inner inactive region,
 - 5) a second piezoelectric section sandwiched between said second outer inactive region and said inner inactive region,
 - C) a slider connected to said microactuator, wherein said slider is independently supported by said microactuator, and
 - D) a read/write head connected to said slider,
- wherein said inner inactive region is sandwiched between said first piezoelectric section and said second piezoelectric section, wherein said inner inactive region is firmly attached to one of said flexure or said slider and both of said outer inactive regions being firmly attached to the other of said flexure or said slider, wherein said microactuator is configured and arranged to linearly move ~~displace~~ said read/write head with respect to tracks of a rotatable disc in response to control signals applied to said microactuator.

Claim 16. (cancelled)

Claim 17. (cancelled)

Claim 18. (cancelled)

Claim 19. (cancelled)

Claim 20. (original) The actuation system as in Claim 15, further comprising at least one flex circuit for providing electrical connections to said read/write head and said microactuator.

Claim 21. (previously presented) The actuation system as in Claim 15, wherein the disc drive actuation system is a magnetic disc drive actuation system.

Claim 22. (original) The actuation system as in Claim 15, wherein the disc drive actuation system is an optical disc drive actuation system.

Claim 23. (previously presented) The actuation system as in Claim 1, wherein said first piezoelectric section comprises two first piezoelectric sides, wherein both of said first piezoelectric sides are opposite to each other, and wherein said second piezoelectric section comprises two second piezoelectric sides, wherein both of said second piezoelectric sides are opposite to each other, wherein one of said two first piezoelectric sides is rigidly attached to said first outer inactive region and wherein the other of said two first piezoelectric sides is rigidly attached to said inner inactive region, and wherein one of said two second piezoelectric sides is rigidly attached to said second outer inactive region and wherein the other of said two second piezoelectric sides is rigidly attached to said inner inactive region.

Claim 24. (previously presented) The actuation system as in Claim 8, wherein said first piezoelectric section comprises two first piezoelectric sides, wherein both of said first piezoelectric sides are opposite to each other, and wherein said second piezoelectric section comprises two second piezoelectric sides, wherein both of said second piezoelectric sides are opposite to each other, wherein one of said two first

piezoelectric sides is rigidly attached to said first outer inactive region and wherein the other of said two first piezoelectric sides is rigidly attached to said inner inactive region, and wherein one of said two second piezoelectric sides is rigidly attached to said second outer inactive region and wherein the other of said two second piezoelectric sides is rigidly attached to said inner inactive region.

Claim 25. (previously presented) The actuation system as in Claim 15, wherein said first piezoelectric section comprises two first piezoelectric sides, wherein both of said first piezoelectric sides are opposite to each other, and wherein said second piezoelectric section comprises two second piezoelectric sides, wherein both of said second piezoelectric sides are opposite to each other, wherein one of said two first piezoelectric sides is rigidly attached to said first outer inactive region and wherein the other of said two first piezoelectric sides is rigidly attached to said inner inactive region, and wherein one of said two second piezoelectric sides is rigidly attached to said second outer inactive region and wherein the other of said two second piezoelectric sides is rigidly attached to said inner inactive region.

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Claim 26. (new) A disc drive actuation system for precisely positioning a read/write head over a selected track of a rotatable disc, said system comprising:

- A) a flexure,
- B) a slider,
- C) a read/write head firmly attached to said slider,
- D) a first drive unit for pivoting said flexure to position said read/write head approximately over the selected track,
- E) a microactuator comprising:
 - 1) an inner inactive region,
 - 2) a first outer inactive region,
 - 3) a second outer inactive region,
 - 4) a first piezoelectric section sandwiched between said first outer inactive region and said inner inactive region,

- 5) a second piezoelectric section sandwiched between said second outer inactive region and said inner inactive region,
wherein said inner inactive region is sandwiched between said first piezoelectric section and said second piezoelectric section, wherein said first outer inactive region and said second outer inactive region are connected to said slider and wherein said flexure is connected to said inner inactive region,
- 6) an electrical circuit for energizing said first and said second piezoelectric sections to cause them to expand and contract in order to precisely position said read/write head over said selected track, said circuit and said piezoelectric sections being configured such that said first piezoelectric section expands when said second piezoelectric section contracts and said first piezoelectric section contracts when said second piezoelectric section expands.

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Claim 27. (~~currently amended~~) A disc drive actuation system for precisely positioning a read/write head over a selected track of a rotatable disc, said system comprising:

- C1 Cont*
- A) a flexure means,
B) a slider means,
C) a read/write head means firmly attached to said slider,
D) a first drive unit means for pivoting said flexure means to position said read/write head means approximately over the selected track,
E) a microactuator means comprising:
- 1) an inner inactive region,
 - 2) a first outer inactive region,
 - 3) a second outer inactive region,
 - 4) a first piezoelectric section sandwiched between said first outer inactive region and said inner inactive region,
 - 5) a second piezoelectric section sandwiched between said second outer inactive region and said inner inactive region,
- wherein said inner inactive region is sandwiched between said first piezoelectric section and said second piezoelectric section, wherein said first outer inactive

region and said second outer inactive region are connected to said slider means and wherein said flexure means is connected to said inner inactive region,

- 6) an electrical circuit for energizing said first and said second piezoelectric sections to cause them to expand and contract in order to precisely position said read/write head means over said selected track, said circuit means and said piezoelectric sections being configured such that said first piezoelectric section expands when said second piezoelectric section contracts and said first piezoelectric section contracts when said second piezoelectric section expands.

Claim 28. (new) A disc drive actuation system for precisely positioning a read/write head over a selected track of a rotatable disc, said system comprising:

- C1 cont
- A) a flexure,
 - B) a slider,
 - C) a read/write head firmly attached to said slider,
 - D) a first drive unit for pivoting said flexure to position said read/write head approximately over the selected track,
 - E) a gapless microactuator comprising:
 - 1) an inner inactive region,
 - 2) a first outer inactive region,
 - 3) a second outer inactive region,
 - 4) a first piezoelectric section sandwiched between said first outer inactive region and said inner inactive region,
 - 5) a second piezoelectric section sandwiched between said second outer inactive region and said inner inactive region,

wherein said inner inactive region is sandwiched between said first piezoelectric section and said second piezoelectric section, wherein said inner inactive region is firmly attached to one of said flexure or said slider and both of said outer inactive regions being firmly attached to the other of said flexure or said slider,

- 6) an electrical circuit for energizing said first and said second piezoelectric sections to cause them to expand and contract in order to precisely position

said read/write head over said selected track, said circuit and said piezoelectric sections being configured such that said first piezoelectric section expands when said second piezoelectric section contracts and said first piezoelectric section contracts when said second piezoelectric section expands.

Claim 29. (new) A disc drive actuation system for precisely positioning a read/write head over a selected track of a rotatable disc, said system comprising:

- A) a flexure,
- B) a slider,
- C) a read/write head firmly attached to said slider,
- D) a first drive unit for pivoting said flexure to position said read/write head approximately over the selected track,
- E) a rectangular block microactuator comprising:

- 1) an inner inactive region,
- 2) a first outer inactive region,
- 3) a second outer inactive region,
- 4) a first piezoelectric section sandwiched between said first outer inactive region and said inner inactive region,
- 5) a second piezoelectric section sandwiched between said second outer inactive region and said inner inactive region,

wherein said inner inactive region is sandwiched between said first piezoelectric section and said second piezoelectric section, wherein said inner inactive region is firmly attached to one of said flexure or said slider and both of said outer inactive regions being firmly attached to the other of said flexure or said slider,

- 6) an electrical circuit for energizing said first and said second piezoelectric sections to cause them to expand and contract in order to precisely position said read/write head over said selected track, said circuit and said piezoelectric sections being configured such that said first piezoelectric section expands when said second piezoelectric section contracts and said first piezoelectric section contracts when said second piezoelectric section expands.

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Claim 30. (new) The actuation system as in Claim 28, wherein said rectangular block microactuator is gapless.
